

CASE REPORT: PARAARTICULAR SOFT-TISSUE OSTEOMA OF THE HIP

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ABSTRACT

A case of paraarticular soft-tissue osteoma of the hip is presented. The patient is a 30-year-old white male with a two year history of progressive left hip pain. Plain film and cross-sectional imaging in conjunction with pathologic correlation are used to make the diagnosis. The lesion lacks the typical zoning pattern of myositis ossificans, shows no direct communication with native bone, and is extraarticular in location as opposed to synovial osteochondromatosis. Soft tissue osteomas most commonly occur around the knee, the foot, and the ankle. Soft tissue osteomas are rare tumors and this case is unusual in that it occurs around the hip.

INTRODUCTION

Soft tissue osteomas are rare tumors containing both cartilaginous and osseous components. Reith et al recently reviewed 21 cases described as paraarticular osteochondroma which occurred around the knee (76%), the foot (19%), and the ankle (5%)¹. Schweitzer et al reported two cases of soft tissue osteomas of the thigh². Although the exact etiology of these lesions is unknown, it has been proposed that soft-tissue chondroma, myositis ossificans, soft-tissue osteochondroma, and soft-tissue osteoma lie on a spectrum related to soft tissue injury². The radiologic and histologic appearances of these lesions differ based upon the relative amount and appearance of the osseous and cartilaginous components.

CASE REPORT

A 30-year-old white male with a two year history of progressive left hip pain, particularly with flexion and rotation, presented for evaluation. Plain radiographs showed a sclerotic lesion projecting over the femoral

neck. MR imaging was interpreted as normal. Non-steroidal anti-inflammatory medications did not provide significant relief. His pain continued which began limiting his daily activities. One year after his initial evaluation a bone scan was performed because of persistent pain. This showed focal increased uptake adjacent to the left femoral neck. Plain films taken at this time showed findings consistent with myositis ossificans.

Approximately one year later he was evaluated at a different institution. Physical examination revealed no soft tissue or bony mass although an antalgic gait was present. Range of motion was limited. AP and lateral plain radiographs showed an ossified mass posterior to the left femoral neck which had enlarged in size from 2 years prior (Figure 1A). Subsequent CT examination demonstrated a densely ossified mass measuring 1.5cm by 1.5cm, directly adjacent to the posterior aspect of the femoral neck (Figure 1B). Because of interval growth, persistent pain, and limitation of motion, surgical excision was performed. Pathologic analysis showed a solitary mass composed of a mixture of regionally arranged woven and lamellar bone with peripheral cartilaginous components (Figure 1C). Radiographs at 6 and 12 months showed no recurrence.

DISCUSSION

Extraskelatal osseous and cartilaginous tumors of the extremities are rare. Benign osseous lesions include myositis ossificans, fibro-osseous pseudotumor, fibrodysplasia ossificans progressiva, and soft-tissue osteoma. Malignant osseous lesions include extraskelatal osteosarcoma. Benign cartilaginous lesions include soft-tissue chondroma, and the tumor-like process of osteochondromatosis. Malignant cartilaginous lesions include extraskelatal chondrosarcoma. The differential diagnosis for these extraskelatal cartilaginous and osseous lesions include soft-tissue sarcoma, benign mesenchymoma, malignant mesenchymoma, calcified gouty tophi, melorheostosis, pilomatixoma (calcifying epithelioma of Malherbe), and tumoral calcinosis³.

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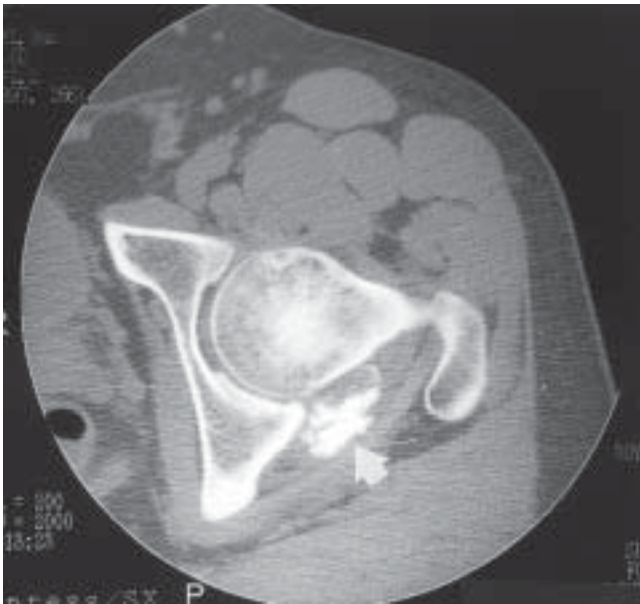


Figure 1A. AP radiograph shows an ossified mass adjacent to the posterior aspect of the femoral neck.



Figure 1B. CT scan done two days after A shows this ossified mass in greater detail. Note it is separate from the femur.

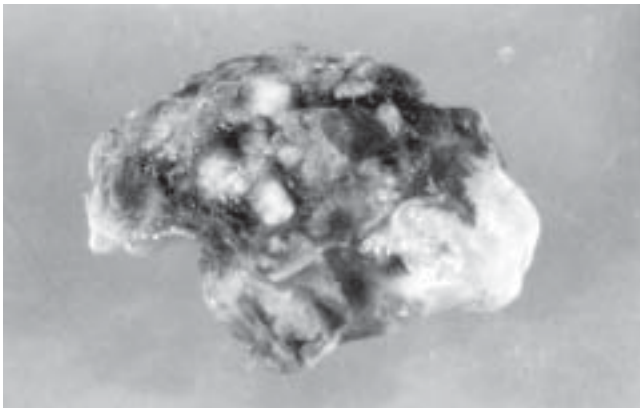


Figure 1C. Gross specimen taken ten days after B shows a solitary mass composed of a mixture of regionally arranged woven and lamellar bone with peripheral cartilaginous components.

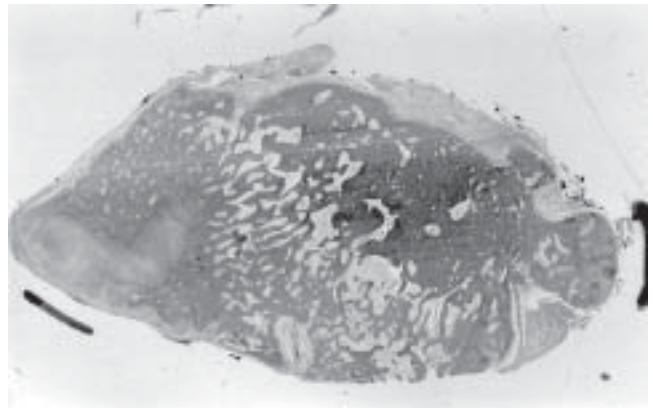


Figure 1D. Photomicrograph of C shows sheet-like areas and broad trabeculae of woven and lamellar bone. On higher magnification some chondrocyte atypia but no abnormal mitotic activity was seen.

Figures 1A-1D. 30-year-old man with hip pain and progressive limitation of motion over two years.

The terminology used to describe osteocartilaginous lesions is inconsistent and confusing. Soft tissue osteomas, osteochondromas, chondromas, and myositis ossificans form a spectrum of post traumatic ossifying soft tissue lesions². Soft tissue osteoma, chondroma, and osteochondroma are characterized histologically by adult hyaline-type cartilage⁴. They differ from each other in the relative amounts and location of the cartilaginous tissue and in the maturity of the osseous tissues. Several cases of soft tissue osteoma have previously been described in the literature, most near the mouth. Two

recently reported cases occurred in the soft tissues of the thigh². Histologically soft tissue osteomas consist of mature lamellar bone with a predominantly cartilaginous capsule blending into benign hyaline cartilage³. Soft-tissue chondromas usually appear in the hands and feet and display at least focal areas of hyaline cartilage formation³.

Paraarticular osteochondromas are seen in the soft tissues adjacent to a joint. The knee is the most common location, followed by the foot and ankle¹. There are several shared histologic features of paraarticular

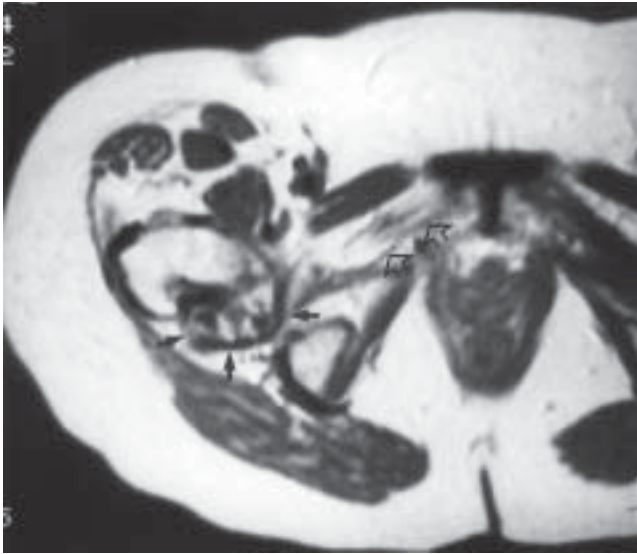


Figure 2. 56-year-old woman with chronic right hip pain. T1-weighted axial MR image of the pelvis shows atrophy of the obturator externus muscle (open arrows) due to compression by a soft tissue osteoma (arrows).

osteochondromas including peripheral cartilaginous areas surrounding central areas of lamellar or trabecular bone.

Differentiation of these different tumor types is possible when utilizing both radiographic and pathologic information. For example, on plain film myositis ossificans has a characteristic zoning pattern of ossification with areas of radiolucency within the central portion of the lesion and a denser rim at the periphery³. Cross sectional imaging will help to show the extraarticular location of a paraarticular osteochondroma as opposed to the intraarticular location of synovial osteochondromatosis. It also reveals that there is no direct continuity with native bone. In contrast to benign chondroid tumors, a soft tissue chondrosarcoma usually contains little or no recognizable hyaline cartilage^{5,6}. Pain, limitation of motion, and atrophy are potential complications related to these soft tissue tumors (Figure 2).

Soft tissue osteoma of the hip is rare. Characteristic radiographic appearances should allow differentiation from other similar lesions but pathologic correlation may be required to make a confident and accurate diagnosis.

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